Vermont Department of Health

Drinking Water Guidance

Health Protection Division
December 2002

TO: Interested Parties **{**PRIVATE **}**

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RE: Vermont Department of Health Drinking Water Guidance

The Vermont Department of Health Drinking Water Guidance document lists the Vermont Action Levels (VALs), the Vermont Health Advisories (VHAs) and the Environmental Protection Agency's (EPA's) Maximum Contaminant Levels (MCLs) for chemicals of concern in drinking water. All concentrations listed are in parts per billion (ppb).

- **Vermont Action Levels** are used with eight chemicals of specific public health concern in public water systems. Action Levels as established by the Department of Health are the concentrations at or above which a specific (priority) procedure will be followed to provide public health protection.

- **Vermont Health Advisories** are researched and calculated concentrations of chemicals in drinking water in instances where the chemicals do not have an MCL.

  When the chemical in question is a Class A or B (known or probable) carcinogen, the Advisory is a concentration based on a one in a million lifetime cancer risk and takes into account the detection limit of the chemical. The Advisory is considered health protective, and is used as a tool in risk assessment.

  Chemicals which have no MCL and are not carcinogenic, are assigned a Health Advisory at or below a level at which adverse, non-cancer health effects are unlikely to occur after a lifetime of exposure.

  The Vermont Health Advisories are guidelines which should provide a margin of safety to people consuming water below these levels. If an advisory is exceeded, it does not necessarily follow that adverse health effects will occur, but that further evaluation of the water supply is warranted.

- **Maximum Contaminant Levels** are the enforceable standards used in the regulation of public water systems.

  Keep in mind that mixtures of chemicals in a water supply may be below advisory concentrations, but still might pose a health threat. These situations and situations involving children or special populations should be evaluated on a case-by-case basis by the Division of Health Protection.

  Permit programs at both the Department of Environmental Conservation and the Department of Agriculture use Vermont Health Advisories and their associated Preventive Action Levels (PALs). A Preventive Action Level is set at 50% of the Health Advisory unless the chemical compound is known to have carcinogenic, mutagenic or teratogenic potential. In these situations, the Preventive Action Level is set at 10% of the Health Advisory.

Chemical Name	VAL (ppb)	VHA (ppb)	MCL (ppb)
Acetone		700.0	
Acifluorfen		1.0	
Alachlor			2.0
Aldicarb		7.0	
Aldicarb Sulfone		7.0	
Aldicarb Sulfoxide		7.0	
Aldrin		0.05	
Ametryn		60.0	
Ammonium Sulfamate		2000.0	
Anthracene		2100.0	
Antimony			6.0
Arsenic			10.0
Atrazine			3.0
Azoxystrobin Technical		1476.0	
Barium			2000.0
Baygon		3.0	
Bendiocarb		3.0	
Benefin		2100.0	
Benomyl		350.0	
Bensulide		50.0	
Bentazon		200.0	
Benzene	1.0		5.0
Benzo(a)pyrene			0.2
Beryllium			4.0
Boron		600.0	

Chemical Name	VAL(ppb)	VHA(ppb)	MCL (ppb)
Bromacil		90.0	
Bromate			10.0
Bromochloromethane		90.0	
Bromomethane		10.0	
Bromoxynil		14.0	
Butylate		350.0	
Cadmium			5.0
Carbaryl		70.0	
Carbofuran			40.0
Carbon Tetrachloride	0.5		5.0
Carboxin		700.0	
Chloramben		100.0	
Chloramines		70.0	
Chlordane			2.0
Chlorite			1000.0
Chlorobenzene			100.0
Chloroisopropyl Ether (Bis-2)		300.0	
Chloromethane		30.0	
Chlorothalonil		1.5	
Chlorotoluene (ortho)		100.0	
Chlorotoluene (para)		100.0	
Chlorpyrifos		20.0	
Chromium			100.0
Cimectacarb		1050.0	
Clopyralid		330.0	
Copper		1300.0	
Cyanazine		1.0	

Chemical Name	VAL(ppb)	VHA(ppb)	MCL(ppb)
Cyanide			200.0
Dacthal		7.0	
Dalapon			200.0
Dazomet		88.0	
Di(2-ethylhexyl) adipate			400.0
Di(2-ethylhexyl) phthalate			6.0
Diazinon		0.6	
Dibromochloropropane	0.03		0.2
Dicamba		189.0	
Dichlorobenzene (meta)		600.0	
Dichlorobenzene (ortho)			600.0
Dichlorobenzene (para)			75.0
Dichlorodifluoromethane		1000.0	
Dichloroethane (1,1)		70.0	
Dichloroethane (1,2)	0.5		5.0
Dichloroethene (1,1)			7.0
Dichloroethene (cis-1,2)			70.0
Dichloroethene (trans-1,2)			100.0
Dichlorophenoxyacetic Acid (2,4)			70.0
Dichloroprop		140.0	
Dichloropropane (1,2)	0.6		5.0
Dichloropropene (1,3)		0.5	
Dieldrin		0.02	
Dimethrin		2000.0	
Dinoseb			7.0

Chemical Name	VAL (ppb)	VHA (ppb)	MCL (ppb)
Dioxane (para)		20.0	
Diphenamid		200.0	
Diquat			20.0
Disulfoton		0.3	
Diuron		10.0	
Endothall			100.0
Endrin			2.0
Ethofumesate		280.0	
Ethoprop		1.0	
Ethylbenzene			700.0
Ethylene Dibromide			0.05
Ethylene Glycol		7000.0	
Ethylene Thiourea		5.0	
Etridiazole		1.0	
Fenamiphos		2.0	
Fenarimol		630.5	
Fluometuron		90.0	
Fluoranthene		280.0	
Fluorenes		280.0	
Fluoride			4000.0
Flurprimidol		700.0	
Flutolanil		1400.0	
Fluvalinate		70.0	
Fonofos		10.0	
Formaldehyde		1000.0	

Chemical Name	VAL (ppb)	VHA (ppb)	MCL (ppb)
Fosetyl-Al		2343.0	
Glufosinate-ammonium		20.0	
Glyphosate			700.0
Haloacetic Acids (Total)			60.0
Halofenozide		46.0	
Halosulfuron-methyl		990.0	
Heptachlor			0.4
Heptachlor Epoxide			0.2
Hexachlorobenzene	0.22		1.0
Hexachlorobutadiene		1.0	
Hexachlorocyclopentadiene			50.0
Hexane (n)		420.0	
Hexazinone		200.0	
Imidacloprid		93.0	
Iprodione		280.0	
Isophorone		100.0	
Isoxaben		175.0	
Lead		15.0	
Lindane			0.2
Maleic Hydrazide		4000.0	
Maneb		35.0	
Manganese		840.0	
MCPA		10.0	
Mecoprop		35.0	
Mercury			2.0
Metalaxyl		350.0	

Chemical Name	VAL (ppb)	VHA (ppb)	MCL (ppb)
Methomyl		200.0	
Methoxychlor			40.0
Methyl Ethyl Ketone		4200.0	
Methyl Isobutyl Ketone		560.0	
Methyl Parathion		2.0	
Methyl-tert-Butyl Ether		40.0	
Methylene Chloride			5.0
Metolachlor		70.0	
Metribuzin		32.5	
Molybdenum		40.0	
Myclobutanil		120.0	
Naphthalene		20.0	
Napropamide		70.0	
Nickel		100.0	
Nitrate			10000.0
Nitrates/Nitrites (total)			10000.0
Nitrite			1000.0
O-Phenylphenol		18.0	
Oxamyl			200.0
Paclobutrazol		455.0	
Paraquat		30.0	
Pendimethalin		280.0	
Pentachloronitrobenzene		6.0	
Pentachlorophenol			1.0
Phenol		2100.0	
Picloram			500.0

Chemical Name	VAL(ppb)	VHA (ppb)	MCL(ppb)
Polychlorinated Biphenyl			0.5
Prometon		100.0	
Pronamide		50.0	
Propachlor		90.0	
Propamocarb hydrochloride		924.0	
Propazine		10.0	
Propham		100.0	
Propiconazole		104.0	
Quinclorac		369.0	
Selenium			50.0
Simazine			4.0
Styrene			100.0
Tebuthiuron		500.0	
Terbacil		90.0	
Terbufos		0.9	
Tetrachlorodibenzo-p-Dioxin (2,3,7,8)			0.00003
Tetrachloroethane (1,1,1,2)		70.0	
Tetrachloroethylene	0.7		5.0
Thallium			2.0
Thiophanate Methyl		560.0	
Thiram		35.0	
Toluene			1000.0
Toxaphene			3.0
Triadimefon		10.0	
Trichlorfon		1.5	

Chemical Name	VAL(ppb)	VHA(ppb)	MCL(ppb)
Trichlorobenzene (1,2,4)			70.0
Trichlorobenzene (1,3,5)		40.0	
Trichloroethane (1,1,1)			200.0
Trichloroethane (1,1,2)			5.0
Trichloroethylene			5.0
Trichlorofluoromethane		2100.0	
Trichlorophenoxyacetic Acid (2,4,5)		70.0	
Trichlorophenoxypropionic Acid (2,4,5)			50.0
Trichloropropane (1,2,3)		5.0	
Triclopyr		487.0	
Trifloxystrobin		410.0	
Trifluralin		5.0	
Trihalomethanes (Total)			80.0
Trimethylbenzene (1,2,4)		5.0	
Trimethylbenzene (1,3,5)		4.0	
Uranium			20.0*
Vinyl Chloride	0.5		2.0
Xylenes			10000.0
Zineb		350.0	
VDH/gmc/dec 2002			

*Uranium MCL listed is the Vermont MCL, the federal MCL is 30 ug/liter.

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1. The Guidance Table's Maximum Contaminant Levels (MCLs) denote **Primary MCL**s. For your information, the following are **Secondary MCL**s. Secondary MCLs are used in regulation of contaminants in drinking water that primarily affects the aesthetic qualities relating to the public acceptance of drinking water (40CFR§143.3). See Chapter 21, the Water Supply Rule, Chapter 6.13 and Appendix E.

Contaminant	SMCL
Aluminum	50-200 ppb
Chloride	250,000 ppb
Color	15 color units
Copper	1,000 ppb
Corrosivity	non-corrosive
Fluoride	2,000 ppb
Foaming Agents	500 ppb
Iron	300 ppb
Manganese	50 ppb
Odor	3 threshold odor number
PH	6.5 - 8.5
Silver	100 ppb
Sulfate	250,000 ppb
Total Dissolved Solids	500,000 ppb
Zinc	5,000 ppb

2. **Sodium** is considered a "**special monitoring**" inorganic (40CFR§141.41) and in the Water Supply Rule, Chapter 21, Section 6.13(g), Table 3, is assigned an SMCL for permitted water systems.

Contaminant	SMCL
Sodium	250,000 ppb

3. **Lead and Copper** are regulated using "**Action Level**s" (40CFR§141.8). These are also listed as health advisories in the Reference Guide.

Contaminant	Action Level
Lead	15 ppb
Copper	1,300 ppb

4. One inorganic not able to be listed in the Reference Guide is **asbestos**, as the units for this MCL are fibers/liter (40CFR§141.51).

Contaminant	MCL
Asbestos	7 million fibers/liter (longer than 10 µm)

5. **Radionuclides** MCLs measured in picoCuries per liter (pCi/L) are as follows: (40CFR§141.15).

Contaminant	MCL
Adjusted Gross Alpha Activity	15 pCi/L (picoCuries/liter)
Radium 226 + Radium 228	5 pCi/L

Please discard any former Health Advisory Guides. Questions can be directed to the Division of Health Protection at **1-800-439-8550 or 863-7220.**